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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/606,221	06/26/2003	Yoshihiro Hama	P23527.dc1.doc	3707

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GREENBLUM & BERNSTEIN, P.L.C.  
1950 ROLAND CLARKE PLACE  
RESTON, VA 20191

EXAMINER

MARTINEZ, JOSEPH P

ART UNIT PAPER NUMBER

2873

DATE MAILED: 03/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/606,221	<b>Applicant(s)</b> HAMA ET AL.	
	<b>Examiner</b> Joseph P. Martinez	<b>Art Unit</b> 2873	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some    \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>10-1-03</u> . | 6) <input type="checkbox"/> Other: ____.  |

## **DETAILED ACTION**

### ***Specification***

The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

### ***Oath/Declaration***

It does not identify the city and either state or foreign country of residence of each inventor. The residence information may be provided on either on an application data sheet or supplemental oath or declaration.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takayama (6501586).

Re claim 1, Takayama teaches for example, a scanning optical system, comprising: a light source (laser 1, fig. 1) that emits a light beam; a polygon mirror (polygon 33, fig. 5)

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arranged to rotate about a rotation axis and having a reflection surface (reflective facet 32, fig. 5) parallel to said rotation axis, said reflection surface deflecting said light beam (reflected beam 35, fig. 5) so as to scan said light beam on an object surface (image plane 8, fig. 1); an image forming optical system (cylindrical lens 5, fig. 1) disposed between said polygon mirror and the object surface to converge the light beam deflected by said reflection surface on the object surface; and a light shielding member (shielding member 34, fig. 5) disposed between said polygon mirror and said image forming optical system, said light shielding member blocking a ghost light (third beam 37, fig. 5) reflected by another reflection surface (adjacent face 36, fig. 5) of the polygon mirror located adjacent to the reflection surface deflecting the light beam, said ghost light being generated by said image forming optical system (first beam 31, col. 5, ln. 41-48).

But, Takayama fails to explicitly teach the ghost light is generated by the image forming optical system partially reflecting said light beam toward the polygon mirror.

However, Takayama teaches flare light (third beam 37, fig. 5) reflected by an adjacent face which will adversely affect the image if it reaches the image plane. The office interprets the flare light reflected of the adjacent face of Takayama to be equivalent to the claimed ghost light reflected off the adjacent face, regardless of where the unwanted light comes from.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Takayama to include the shielding member of Takayama further blocks ghost light that is generated by the image forming optical system partially reflecting said light beam toward the polygon mirror because light reflected by an adjacent face will adversely affect the image if it reaches the image plane.

Re claim 2, Takayama further teaches for example, wherein said light shielding member is an opaque plate (positioning member 97, fig. 9, col. 6, ln. 38-40).

Re claim 3, Takayama further teaches, said opaque plate (positioning member 97, fig. 9) is disposed perpendicular to an optical axis of said image forming optical system (lens 96, fig. 9).

Re claim 4, Takayama further teaches for example, said light beam is scanned on the object surface in a main scanning direction (scan direction S, fig. 1), and wherein said opaque plate (positioning member 97, fig. 9) is disposed in parallel to said main scanning direction (scan direction S, fig. 1).

Re claim 5, Takayama further teaches for example, wherein said light shielding member (positioning member 97, fig. 9) is disposed out of a beam scanning area (area where beam 91 is incident on polygon mirror 93, fig. 9) within which said light beam is to be scanned by said polygon mirror.

Re claim 6, Takayama further teaches for example, said light shielding member (positioning member 97, fig. 9) is disposed such that one end thereof is located within an area surrounded by said reflection surface deflecting said light beam (reflective facet 92, fig. 9), said beam scanning area (first beam 91, fig. 9), and an area within which said ghost image (third beam 94, fig. 9) reflected by said another reflection surface is to be scanned.

2. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Takayama (6501586) in view of Koide (5181137).

Re claim 7, Takayama teaches the scanning optical system as disclosed above.

But, Takayama fails to explicitly teach a plurality of said light sources arranged to emit a plurality of said light beams toward a substantiality single point defined in a vicinity of said reflection surface of said polygon mirror, said plurality of light beams being distributed symmetrically with respect to a main scanning plane, said main scanning plane passing through said single point and being perpendicular to said rotation axis of said polygon mirror, wherein said image forming optical system is arranged to converge said plurality of light beams deflected by said polygon mirror on different photoconductive drums.

However, within the same field of endeavor, Koide teaches for example, a plurality of said light sources (light emitting units 101-103, fig. 5C) arranged to emit a plurality of said light beams toward a substantiality single point (col. 3, ln. 42-46) defined in a vicinity of said reflection surface of said polygon mirror (light deflector 2, fig. 4), said plurality of light beams being distributed symmetrically with respect to a main scanning plane, said main scanning plane passing through said single point and being perpendicular (col. 3, ln. 47-49) to said rotation axis of said polygon mirror, wherein said image forming optical system (lens system 3, fig. 4) is arranged to converge said plurality of light beams deflected by said polygon mirror on different photoconductive drums (scan planes 50-53, fig. 4, col. 4, ln. 12-13).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teachings of Takayama to include the plurality of light sources arranged to emit a plurality of light beams toward a substantially single point defined in a vicinity of the reflection surface of the polygon mirror, the plurality of light beams being distributed symmetrically with respect to a main scanning plane, the main scanning plane passing through a single point and being perpendicular to the rotation axis of the polygon mirror, wherein the image forming optical system is arranged to converge the plurality of light beams deflected by the polygon mirror on different photoconductive drums in order to have a multi-color laser beam printer.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph P. Martinez whose telephone number is 571-272-2335. The examiner can normally be reached on M-F 7:00 AM to 3:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Y. Epps can be reached on 571-272-2328. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

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system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

JPM

3-10-04



Georgia Epps  
Supervisory Patent Examiner  
Technology Center 2800